

We Claim:

1. A method for transmitting information in a communication channel of a wireless communication system, the method comprising:

dividing the communication channel into a plurality of time slots of equal duration; and

5 sub-dividing each of the plurality of time slots to comprise two or more sub-slots,

wherein each of the two or more sub-slots is capable of carrying a separate transmission within the communication channel.

10 2. The method according to claim 1, wherein each of the two or more sub-slots within a particular time slot is separately transmitted according to a code division multiple access scheme.

15 3. The method according to claim 2 wherein, in any one of the plurality of time slots, each of a plurality of transmissions are separately coded and carried in a separate sub-slot simultaneously in such time slot.

4. The method according to claim 3 wherein each of the plurality of transmissions correspond to a separate user of the wireless communication system.

20 5. The method according to claim 3, wherein each of the plurality of transmissions correspond to separate transmissions of a single user of the wireless communication system.

25 6. The method according to claim 1, wherein each of the two or more sub-slots within a particular time slot corresponds to a different frequency according to a frequency division multiple access scheme.

30 7. The method according to claim 1, wherein a single transmission can be carried in one or more sub-slots in one or more contiguous time slots.

8. The method according to claim 1, wherein the communication channel comprises time slots each having a duration of 1.25 milliseconds and wherein each of the time slots comprises at least two sub-slots.

9. The method according to claim 1, further comprising:
transmitting a separate control channel for each separate transmission
carried in the communication channel.

5 10. The method according to claim 9, wherein the duration of the separate
control channel is dependent upon the number of sub-slots carrying the
corresponding transmission in the communication channel.

10 11. The method according to claim 9, wherein the communication channel
is a forward packet data channel (F-PDCH), wherein information is transmitted as
encoder packets in the forward packet data channel (F-PDCH), and wherein the
separate control channel is a forward secondary packet data control channel
(SPDCCH).

15 12. The method according to claim 11, wherein the forward secondary
packet data control channel (SPDCCH) includes:
a sub-slot start field for identifying a sub-slot within a time slot in which a
particular transmission starts; and
a sub-slot count field for identifying the total number of sub-slots that carry the
20 particular transmission.

25 13. The method according to claim 11, wherein a plurality of forward
secondary packet data control channels (SPDCCH) correspond to a plurality of
simultaneous transmissions on the forward packet data channel (F-PDCH), and
wherein each of the plurality of secondary packet data control channels (SPDCCH)
identifies a sub-slot start position within a time slot in which a particular transmission
starts.

30 14. A method for transmitting information in a communication channel of a
wireless communication system, the method comprising:
dividing the communication channel into a plurality of time slots of equal
duration according to a time division multiple access scheme; and
sub-dividing each of the plurality of time slots to comprise two or more sub-
slots according to a code division multiple access scheme,

wherein each of the two or more sub-slots is capable of carrying a separately coded transmission within the communication channel so that multiple simultaneous transmissions can occur in any given time slot.

- 5 **15.** A method for transmitting information in a communication channel of a wireless communication system, the method comprising:

time multiplexing a plurality of time slots of equal duration in the communication channel; and

- 10 code multiplexing two or more sub-slots within each of the plurality of time slots.

- 16.** The method according to claim **14**, wherein each of the two or more sub-slots is capable of carrying a separately coded transmission within the communication channel so that multiple simultaneous transmissions can occur in any
15 given time slot.